



## **An Integrated Assessment Method of Water Quality and Quantity Based on Water Cycle Process Simulation in P.R.China**

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**Abstract**Water quantity and quality integrated assessment is a foundation task in water resources management of China. Nowadays, research on the distribution and changing characteristic of water resources (including quantity and quality) in the ungauged basin or the changing environment is one of the difficulties in water resources assessment. This paper brought the distributed water quantity-quality model in the integrated assessment, and put forward an integrated assessment method of water quality and quantity based on water cycle process simulation. Moreover, this method is applied in She county as a seriously-polluted area in Hai River Basin, China. The results is shown that: the total water resources of Qingzhang river which is the main river, is 2,460 million m<sup>3</sup> in year 2004, and there is 6,900 million m<sup>3</sup> water resources among class one to three of the Chinese National Standard (GB3838-2002), which account for 28.0% of total water resources. In year 2006, the total water resources is 2,360 million m<sup>3</sup> and there is 1,310 million m<sup>3</sup> water resources among class one to three, which account for 55.4% of total water resources. Through the pollution improvement for two years, the available water resources in Qingzhang River increased greatly. This method perfects the present integrated assessment method of water quality and quantity, and provides a new approach to resolve the water resources assessment in the ungauged basin or the changing environment. Furthermore, it will provide the technical foundation for the basin water resources integrated planning, allocation and management.

**Key words**Water resources assessment, Water quantity and quality, SWAT, Hai River Basin

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